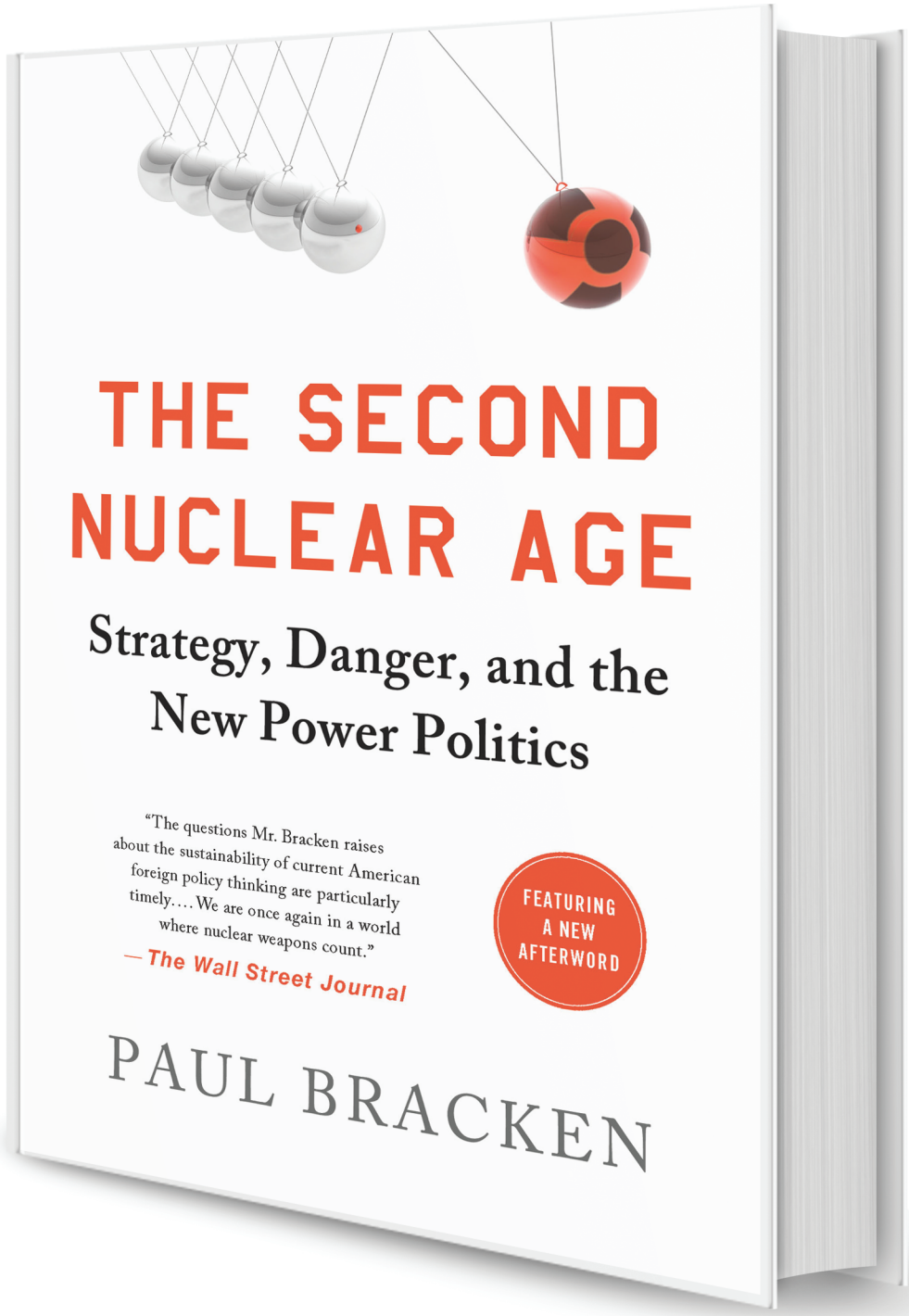
It's a multiplayer nuclear world now, making it more dangerous than in the Cold War era.



On July 22, 2013, at the 2nd Los Alamos Primer lectures, Paul Bracken, professor at Yale University spoke on the need for the United States to pay renewed attention to nuclear weapons.

Following the end of the Cold War, many world leaders, scholars, and other people of good will were attracted to the idea that the bomb might now disappear and that the world would embrace an international order free of nuclear weapons. While I personally support that idea very much, I would argue that it is not happening and is very unlikely to happen.

Today, social history in regard to nuclear weapons is being written in many other countries. For the physicists and engineers in these countries—India, Pakistan, and others—there is a reward system and a bureaucracy that is building up and thickening around nuclear weapons. In short, many other countries are in a stage of nuclear development the United States was in during the late 1940s and early 1950s. There is excitement as well as fear developing in these new nuclear states. More, their development will have profound implications for international relations. I'd like to consider some of these dynamics here.

This is the Second Nuclear Age: the spread of nuclear weapons for reasons having nothing to do with the Cold War.

First, let me begin with the purpose behind these new nuclear programs by going back to the early U.S. atomic program. A recent book titled *Ike's Bluff* is based on the thesis that President Eisenhower developed and expanded the nuclear complex as a bluff to use in waging the Cold War. I can't imagine any thesis I could possibly disagree with more for one simple reason: it wasn't any bluff. When you build a nuclear force as big as the United States did in the Cold War, what I call the First Nuclear Age, some of the weapons might have gone off. Indeed, the studies done in the 1980s about command and control and crisis stability indicate that the chance of that happening was greater than anyone thought at the time. So the notion that the buildup of weapons was a bluff is, I think, a fundamental misconception about the First Nuclear Age.

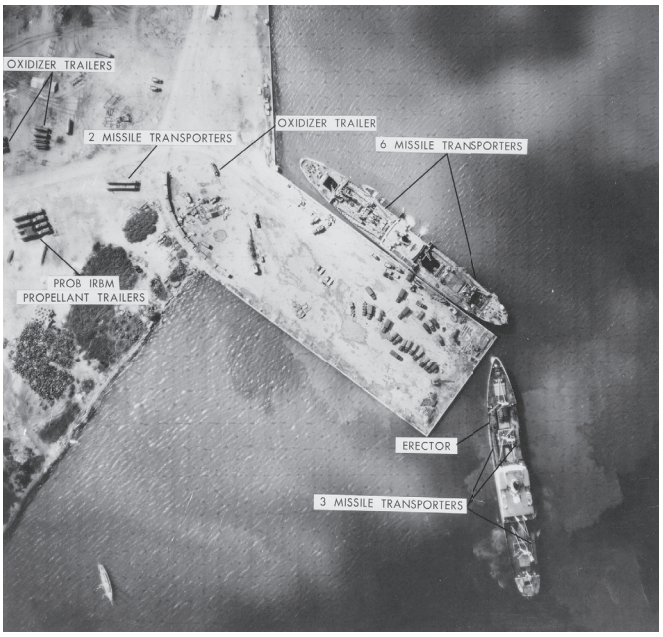
The overwhelmingly most important lesson from the Cold War was this: you don't have to fire a nuclear weapon to use it.

If it wasn't a bluff, then what was it? It was a "Faustian bargain." The bargain was that if the United States built these nuclear systems, we could get away with waging the Cold War on the cheap. The same Faustian bargain is being made today right before our eyes. Pakistan, North Korea, and likely Iran think their best course of action is to base their national security on the bomb. They may think it's a bluff, but it's actually a Faustian bargain.

Paul Bracken is a professor of management and political science at Yale University and a leading expert in global competition and the strategic application of technology in business and defense. He serves on several Department of Defense advisory boards. His latest book is The Second Nuclear Age: Strategy and the New Power Politics. *(Photo: Paul Bracken)*

This is the Second Nuclear Age: the spread of nuclear weapons for reasons having nothing to do with the Cold War. When I look back at the Cold War, it seems to me that it masked very powerful forces of international relations that were moving the world toward this Second Nuclear Age. The framework of the Cold War was applied to the dynamics of that era, but with perspective, it now looks otherwise.

We should look at the two nuclear ages in tandem and consider the lessons of the First Nuclear Age that carry over to the Second. There is a long list of Cold War lessons that I don't think apply—but many that do. For example, "Do not get into a thermonuclear war and kill hundreds of millions of people" still applies. But let me call your attention to some lessons that I think are not so obvious.



Left: Berliners watch a U.S. C-54 transport plane bringing vital supplies into the city during the Soviet Union's 1948–1949 blockade. Right: Aerial reconnaissance photographs like this one, taken in October 1962, proved that the Soviets were staging nuclear missiles in Cuba. (Photos: Open Source)

The overwhelmingly most important lesson from the Cold War was this: you don't have to fire a nuclear weapon to use it. The United States used nuclear weapons every single day of the Cold War—yes, for deterrence, but not only for deterrence. The weapons were used in complex ways to signal enemies that the United States was deadly serious about certain issues and that anyone who pressed us on these issues could really get into trouble. Nuclear weapons were used to communicate and bargain with the Soviet Union, making it clear that some Soviet actions would not be allowed, for example, closing down access to Berlin or introducing missiles into Cuba.

Nuclear weapons were used to fight the Cold War on the cheap. We never raised a big army the way the Soviet Union did. The peak size of the U.S. Army during the Cold War was 18 divisions. The Soviets had something like 200, depending on how you count them. We were not going to fight the Cold War that way. Building up a nuclear force cost much less.

Nuclear weapons were used to fight the Cold War on the cheap.

The United States embraced a caution in the Cold War that didn't overload the world with crises and arms races that would have undermined stability. For example, the United States never armed the Soviet Union's two major enemies—Germany and Japan. We never fostered militarism or nationalism in those countries, something that could easily have been done.

Nuclear weapons were also used to create mischief. This is another lesson from the First Nuclear Age for the Second. For example, antiwar movements in Western Europe were founded by honest, sincere people. The Soviet Union often tried to influence those movements, to exploit antinuclear sentiments to split the NATO alliance.

Every president of the Cold War played nuclear head games — putting into the minds of one's enemies illusory models of what might happen if an enemy crossed certain lines.

Another lesson of the First Nuclear Age that I think we should keep in mind is the fact that countries will use their nuclear arsenals to play what I call "nuclear head games": putting into the minds of one's enemies illusory models of what might happen if an enemy crossed certain lines or did certain things. *These head games could have escalated into serious crises.*

Every president of the Cold War played nuclear head games, from Harry Truman to George H. W. Bush. Kennedy did it in the Cuban missile crisis. In another example, Nixon did it in the fall of 1969 when he ordered SAC [the Strategic Air Command] to go on heightened levels of alert, knowing that this would be detected by the Soviet Union. He did this in a way that would not be picked up by the press, and he actually got away with it. SAC was ordered to cancel routine training flights, the so-called "stand-down operations," which looks like you're preparing to do something big and bad, although this was arranged so it would not look like a strike on the Soviet Union.

I've interviewed SAC commanders and deputy commanders about this particular incident. When they got the orders from the White House, they picked up the phone and called back, saying, "If you'd tell us what your objective is with these orders, we could probably help." The response they got—from an unnamed national security affairs advisor with a German accent—was, "If we need your advice, we will ask for it. Shut up and follow orders."

The final Cold War lesson that I think applies to the Second Nuclear Age is this: it pays to think about the unthinkable.

What was going on was an attempt by the White House to communicate to Moscow that the United States might dramatically escalate the bombing of North Vietnam. Moscow should put pressure on Hanoi to give more at the Paris peace talks, which had just started. This nuclear head game didn't work. Hanoi didn't give in at the Paris peace talks; it didn't give in on anything.

Sometimes when presidents use these nuclear head games, they work, but as President Nixon learned, they don't always. But the point isn't that nuclear head games work. It's that every single U.S. administration played these games. During the 1980s I was involved in almost every major academic study that focused on nuclear crisis stability.

For example, we'd go to these summer retreats and in each one of these retreats everyone, including people like McGeorge Bundy and Robert McNamara, would agree that the United States should *not* use nuclear weapons in this kind of way. Yet in reality, everybody did it. I am reminded here of the call to abolish nuclear weapons—by individuals who at one time had responsibility for building more of them and for using them to signal U.S. intent.

Let's take another example of a nuclear head game. Look at the history that's emerging about the United States' "advanced technology programs," the code words for the U.S. attempt to convince the Soviets we could go after their submarines in their protected sea bastions. This was not started under President Ronald Reagan; it was started under President Jimmy Carter. He directed the Navy and the Air Force to engage in very provocative operations against the Soviet's submarines.

My overall point here is that if things like this happened in the Cold War, I believe they are likely to happen in the Second Nuclear Age as well.

The final Cold War lesson that I think applies to the Second Nuclear Age is this: it pays to think about the unthinkable. Looking at hypothetical possibilities is the only way I know to figure out the fault lines, the conflict potential of the Second Nuclear Age. There are many ways to do that, and war games are one. I have run many war games, at the

Slim Pickens played Major "King" Kong in the movie Dr. Strangelove *and is shown here riding the thermonuclear bomb that starts an unintended nuclear war with the Soviet Union. Bracken has run many war games and has found that it is generally hard for a nuclear war to get started. But it is not impossible. For example, a war game called Proud Prophet went all the way to an unintended nuclear catastrophe when the players simply followed actual U.S. strategy. In just the initial launch of the game, a half-billion people died.* (Photo: Open Source)

Hudson Institute and at the Defense Department, and I generally found that it is hard to get a nuclear war started, just as many academic accounts of the First Nuclear Age have emphasized. But it's not always true. In June 1983 a war game named Proud Prophet went all the way . . . all the way to nuclear catastrophe. In this game a half-billion people died from the initial salvos, and most of Europe, the United States, and Russia were destroyed because the secretary of state [Casper Weinberger], and the chairman of the Joint Chiefs of Staff—both of whom were participants in the game—simply followed the strategy laid out in actual U.S. war plans.

The Second Nuclear Age is a multiplayer game. There's a danger of nuclear war being brought on by regional conflicts.

The lesson Secretary Weinberger learned from Proud Prophet was that we were woefully unprepared to deal with a crisis because we didn't really understand the dynamics. The lesson for the Second Nuclear Age is that you have many more countries possibly involved, not just two, as in the Proud Prophet game. Moreover, many of these countries are new to nuclear weapons. They've never been in a nuclear crisis, and there is a liability that comes with such inexperience.

I'm not particularly concerned about nuclear war with Russia, but I am very concerned about the most distinctive feature of the Second Nuclear Age, that it is a multiplayer game. There's a danger of nuclear war being brought on by regional conflicts. So if you think only in terms of bilateral standoffs—the United States vs. Russia, China vs. India, and so on—you will overlook many of the escalation dynamics. There is a larger, multipolar nuclear system developing right before our eyes. There are the major powers, most of which have the bomb, and there are secondary powers that are increasingly getting the bomb. The monopoly the major powers once had on the bomb has broken down.

Anybody who says North Korea can't use the bomb is not recognizing that it's already actively using the bomb to extort food, oil, and prestige.

Let's look at these major and secondary powers. Who's a major power? I'll be generous; it's the United Nations' Permanent 5—the United States, Russia, Great Britain, France, and China—but also India, which in my view is a major power, and Japan, which is a major power, although without the bomb. So only one of the major powers hasn't got the bomb. There are secondary powers that have the bomb, for example, Pakistan, and North Korea. North Korea is a good example. Anybody who says North Korea can't use the bomb is not recognizing that it's already actively using the bomb to extort food, oil, and prestige from the international system.

President Obama and Russian President Medvedev after signing New START, a treaty designed to prevent a Russian surprise attack on the Minuteman force and the B-52s. But according to Bracken, the treaty completely misses the problems of a Second Nuclear Age because of being hemmed into a bilateral relationship. (Photo: Open Source)

So what might look like bilateral standoffs have to be viewed as involving more than two countries. You can't look at the U.S.-China or the U.S.-Russia relationship absent this broader nuclear system. It misses too much. If we put in a missile defense system to protect Japan and South Korea from North Korea, the Chinese will see that as degrading their nuclear forces. If we put missile defense in to protect Europe against a possible nuclear Iran, it will be seen by Russia as degrading its forces. We can declare that this isn't the purpose of U.S. missile defense. But we know that the United States would not accept such a rhetorical declaration if the situation were reversed, if another country built missile defenses against our nuclear forces.

Interestingly, this very complicated structure of major and secondary powers is the mirror image of the First Nuclear Age. In the Cold War one couldn't get a nuclear war to actually start unless it was authorized in Moscow or Washington. Regional, secondary powers didn't have nuclear weapons, and in cases where they did have nuclear weapons—China in 1964, for example—there was an accepted fiction in the Cold War that said we should pretend we were in a bipolar world even though we were not.

The 1973 Arab-Israeli War was really a nuclear crisis that included the United States and the Soviet Union. Now the situation has flipped. The regional powers couldn't go nuclear in the past, but now they can, and the major powers' control over their regional allies, or opponents, is far less because there's much less bloc [U.S. or Soviet] discipline than during the Cold War.

Let me give you another key difference between the two nuclear ages. What were the ideologies that drove the

fundamental competition between the United States and the Soviet Union? It was democracy and liberty on the one hand and totalitarianism on the other, although the Soviet Union might not have seen itself as totalitarian. What is the replacement ideology that drives the world today? I would argue that it's nationalism—the fictitious belief that one country, or people, is superior to another.

Paul Bracken speaking at the 2nd Los Alamos Primer lecture series, held in celebration of the Laboratory's 70th Anniversary.
(Photo: Los Alamos)

Think about it. During no crisis in the Cold War did either superpower instigate million-person marches demanding the blood of the other side. In the Cuban missile crisis, Kennedy could have but did not try to get a million people into Times Square or onto the Washington Mall screaming for the blood of the Soviets. Likewise, the Soviet Union often had staged rallies in Red Square at the Kremlin, but never during a nuclear crisis with the United States. It was too dangerous.

This is not the case today. The demonstrators in Iran are nationalistic. So is Pakistan. You have a very different set of ideological drivers in the Second Nuclear Age than you did in the first.

We had better start thinking about what our design for arms control and strategy looks like in this multipolar nuclear world.

I think the regions, the secondary powers, are where the greatest danger of a nuclear war is. For this reason, I don't understand our fixation on the New Strategic Arms Reduction Treaty (New START), which is designed to prevent a Russian surprise attack on the Minuteman force and the B-52s. Do I support New START? Sure, why not. But it completely misses the problems of a Second Nuclear Age because it's hemmed into a bilateral relationship.

I think that what we're seeing in the United States right now is the beginning of a grudging recognition and acceptance that we are entering a multipolar nuclear world. An example of that is the speech the president gave in Berlin, along with the nuclear weapons fact sheet issued by the White House on the same day. In this fact sheet, the White House talked about ensuring strategic stability with Russia and China. This was significant. I have never before seen China mentioned in a START-like context in an official U.S. document. To me, it signifies U.S. recognition that the world has more than two nuclear weapons states and that we had better start thinking about what our design for arms control and strategy looks like in this multipolar nuclear world.

I believe there's a lot that can be done on arms control. My personal favorite would be the United States declaring no first use of nuclear weapons but *guaranteeing* second use: guaranteed U.S. retaliation against any other country that used nuclear weapons—*any* country, whether friend, enemy, or neutral. I think arms control has to be revitalized far beyond the extremely narrow way it has developed over the last 20 years, which is very much bilateral, or the way it was addressed in the Nuclear Nonproliferation Treaty (NPT). New START solves a problem that isn't going to happen: a Russian surprise attack on U.S. missiles. The NPT is failing to solve a problem that *is* happening. I'm not against either the NPT or New START; I just think they are inadequate to the task. So I'm calling for a rebranding of arms control.

We need Los Alamos thinking in detail about what the nuclear forces of other countries look like, as well as what U.S. forces should look like.

And finally, I'll just say that since the end of the Cold War, the way the United States thinks about nuclear weapons has declined enormously—just the quality and level of discussion, regardless of which side you come out on. Yes, there is a debate. But it doesn't draw in key audiences, like the military, Congress, or other elites. Even in academia, debate about nuclear weapons is now confined to a small group of social scientists, with the science and engineering faculties not involved.

This is where Los Alamos really comes in. I can imagine a wide range of possibilities about who gets the bomb and who doesn't get the bomb. But I don't see the possibility of global nuclear disarmament. As long as that is true, Los Alamos has to continue to serve the country, and I would stress *serve the country*. It may not be what you want to do, but you weren't put here to do what *you* want to do. You were put here to do what the *country* wants you to do. We need people thinking in detail about what the nuclear forces of other countries look like, as well as what U.S. forces should look like. And we need to think about fundamental moral and political issues, with the best technical input you can give us—just as we got from Los Alamos in the Cold War.

(This lecture reflects the opinions of the author.)

Paul Bracken

Q&A

Q: Are there rational players in the Second Nuclear Age?

A: I think yes, but I have concerns that strategic cultures and deep historical forces cause rationality to be defined differently in different countries. I am not of the view, as some people are, that as the bomb spreads, the world becomes more stable. That argument says that if everyone got nuclear weapons, they would behave with extreme caution, and we would have stability. In my opinion, that's a belief only a tenured social science professor could possibly believe.

There are degrees, variants, of rationality, and that is the lesson of modern economics: bounded rationality and its many variants. How that lesson is embodied in the nuclear weapons programs of other countries is something you [LANL] are better at understanding than others are. We need you to help us figure out why the forces of other countries look the way they do, why other nuclear countries do and don't take certain actions.

Q: Do you agree that unless there's control over the spread of nuclear capabilities, everyone is at risk?

A: I would say that, at some point, if we don't get control over the flow of fissile materials, virtually all bets are off. What that control would look like is still to be determined, but whatever it is, it has to be better than the 1928 Kellogg–Briand Pact, which had Germany, France, and Japan as signatories.

I believe that we'll see a great-power arms-control system develop in the 21st century, gradually replacing the NPT regime of the 20th century. Such a control system will involve the United States, Russia, China, India, France, Britain, and perhaps others, such as Japan, if it joins the nuclear club. Major powers will have significantly greater interest in arms control, in my view. This is already developing. For example, every major nuclear power today has either a declared or a de facto no-first-use policy.

Q: Would you comment on the rationality of a no-first-use policy in what you describe as a multipolar world full of national passions? What do you think the end game of announcing such a policy would be? Would it be considered a bluff? Would it be considered real? Would it be a head game?

A: First of all, I think a no-first-use policy is good for the United States today. Guaranteed second use is a lot more controversial and is intended to be so. One of the features of thought leadership in this field, which played out in the First Nuclear Age with people like Henry Kissinger, Tom Schelling, and Herman Kahn, was the intentional overstatement of certain issues to shock bureaucracies into thinking. That's the way I view guaranteed second use.

Let me talk about no first use. I believe that it would get not only the United States but also the bureaucracies in many other countries to think through what they're doing. There is an

unfortunate tendency in the United States, transcending both the current and the past administrations, for any assistant secretary of this or that department to give their views on what U.S. nuclear policy is. There's no central story line coming out of the White House. We recognized in the Cold War that such a situation of fragmented policy was dangerous. We've got to get control of this debate. I think no first use would force the U.S. bureaucracy to think through its policies and get other countries to do the same.

A few weeks ago at Yale, I led a seminar on the Second Nuclear Age for visiting members of India's parliament. And what I found was that their parliament is completely in the dark about their country's military and its nuclear programs. It would be very useful to change this situation. In addition, they have thought about arms control only in terms of a reaction to what other people propose. So if the United States had an arms-control proposal—it doesn't matter what it is—the Indians would usually react negatively just because it came from a major power.

One of the things that developed out of the seminar was the idea that India should start developing its own arms-control proposals. If India starts generating its own arms-control proposals, forcing Washington, Moscow, and China to react, this would focus attention and, I would argue, raise the level of discussion. Personally, I think we have forgotten far too much about nuclear weapons. So in answer to your question, no first use has a lot more to do with peacetime nuclear diplomacy and arms control than it does with war-fighting doctrines.

Q: Would you talk about the effectiveness of the guaranteed second use if the first use were by a nonstate actor?

A: The structure of the world that I see for the Second Nuclear Age includes major powers with and without the bomb, secondary powers with and without the bomb, and groups—subnational entities, whether militias, terrorists, or lunatics— that are also part of the structure. Thank heavens none of the subnational entities has, or to my knowledge is close to having, the bomb. I think in the case of a nonstate group getting and using a nuclear weapon, you would get worldwide agreement that anybody can go after a nuclear terrorist. The United States, China, Russia, France, and Britain would sign on that immediately.

Another first-use scenario, and it's one I worry about, is a country using tactical nuclear weapons on its own territory. My conversations with Russian planners in recent years have shown me that it is not inconceivable that Russia would use nuclear weapons on its own territories, for example, against Chechnya or other threats.

The current level of debate sort of dismisses such first-use scenarios, or it simply says either that everything is a subset of assured second-strike deterrence or that we should get rid of nuclear weapons altogether. It seems to me that those two big models, which have dominated the American nuclear conversation for the past several years, just don't begin to come to grips with the complexity of what's going on in the world today. It's like looking at mechanics and saying you're going to use only Newton's First Law. We've got to enrich this discussion, or we are going to be surprised at one turn after another.

Q: What are the implications of changes in science and technology?

A: There are a lot of implications, and to help us understand them, we need a national resource such as Los Alamos or Livermore. The intelligence services pick up stuff on certain nuclear weapon designs from other countries. What do they mean for how, say, China or Pakistan thinks about its nuclear force? We need tremendous expertise to help us understand what other countries' nuclear programs and strategies mean and how they interact with each other.

And I want to have someone other than a political scientist tell me about the nuclear strategies of other countries. In the Cuban missile crisis, there was a universal belief in the U.S. political science community that the Soviet Union would never assign launch authority to a field commander. But we now know that they did just that. We know because we have the document, in Russian, that proves it. The consensus view was wrong about the Soviets' command-and-control system.

I would say that *Los Alamos should start considering thought leadership* on nuclear issues. In the 1940s that thought leadership was dominated by the greatest physicists of the 20th century. In the 1950s and 1960s it transitioned away from the physicists and moved to institutions like the Rand Corporation and the Hudson Institute.

The leading think tank in the 1930s, the Council on Foreign Relations, was famous for having a global vision. It got us into Lend Lease and working with the allies before Pearl Harbor, but it played little role at the beginning of the Cold War because thought leadership had moved to these other institutions.

I'm not saying that you should be the thought leadership. But I do think Los Alamos needs to construct the intellectual map of where the world is going, where the United States is going in terms of thought leadership, and where Los Alamos fits in.

The days of putting your heads down and saying that you only do technology are over. I would have supported that position for the first 20 years after the Cold War. But those 20 years are over.

You're going to be called upon for advice. If I'm wrong—and Pakistan, China, and North Korea give up their nuclear weapons—then you can go ahead and do all the environmental studies you want. But I don't think I'm wrong. I'm not particularly in favor of a new U.S. nuclear weapon design, but the level of conversation about nuclear weapons in this country is too low for anyone to even know what that design would look like—or why it might be needed.

The debate will start, I feel certain, and you're going to be called upon for your advice. You have to think about it now. If you wait until your advice is needed, it will be too late.

On nuclear issues I think Los Alamos needs to construct the intellectual map of where the world is going, where the United States is going, and where Los Alamos fits in.